

## Today's Prelims Topics

### Musi River

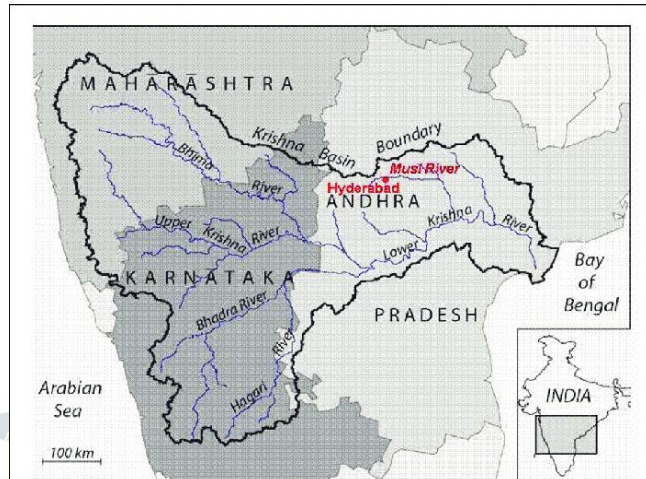
#### Context

HYDRAA (Hyderabad Disaster Response and Asset Protection Agency) reclaimed **over 9.6 acres** of the **Musi river bed** from illegal encroachments.

#### About Musi River

- **Location:** Flows through the southern Indian state of **Telangana**, on the **Deccan Plateau**.
- **Tributary of:** Krishna River.
- Formerly known as the **Muchukunda River**.
- **Origin:** Begins in the **Anantagiri Hills** near **Vikarabad**, in **Rangareddy district**, approximately **90 km west of Hyderabad**.
- **Formation:** Formed by the convergence of two small streams — **Esi (8 km)** and **Musa (13 km)**.
- **Dams:** Himayat Sagar, Osman Sagar

Source: [TheHindu](https://www.thehindu.com)



## Pralay Missile

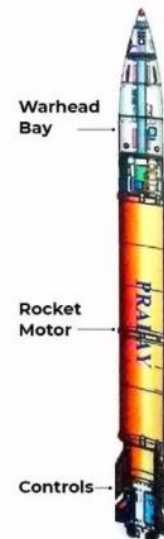
### Context

The Defence Research & Development Organisation (DRDO) successfully carried out **two consecutive flight-tests** of the **Pralay missile** from **Dr. A.P.J. Abdul Kalam Island**, located off the **Odisha coast**.

### About Pralay Missile

- **Type:** Indigenously developed **quasi-ballistic missile** with advanced **guidance and navigation systems** for high precision.
- **Belongs to:** India's K-series of submarine-launched ballistic missiles (SLBMs).
- **Propulsion:** Powered by **solid propellant**.
- **Range:** Operational range of **150 to 500 km**.
- **Payload Capacity:** Capable of carrying **payloads between 500 to 1,000 kg**.
- **Launch Platform:** Can be launched from a **mobile launcher**.
- **Accuracy:** Equipped with advanced guidance systems achieving a **Circular Error Probable (CEP) of less than 10 meters**.
- **Speed:** Achieves **terminal speeds of Mach 6.1**.
- **Target Types:** Designed to destroy **radar installations, command centers, airstrips**, and other high-value assets.
- **Manoeuvrability:** Can **alter its path midair** after covering a certain distance.
- **Developed by:** **Research Centre Imarat (RCI)**, in collaboration with other DRDO laboratories.
- **Industry Partners:** Includes **Bharat Dynamics Limited (BDL)**, **Bharat Electronics Limited (BEL)**, and several **MSMEs and private industries**.

Source: [TheHindu](https://www.thehindu.com)



## The State of Food Security and Nutrition in the World 2025

### Context

The 'State of Food and Nutrition in the World (SOFI) 2025' report was released.

### About SOFI Report 2025 (State of Food Security and Nutrition in the World)

- **Published by:** A joint annual report by **five UN agencies**:
  - **FAO** (Food and Agriculture Organization)
  - **IFAD** (International Fund for Agricultural Development)
  - **UNICEF** (United Nations Children's Fund)
  - **WFP** (World Food Programme)
  - **WHO** (World Health Organization)
- It is the annual global monitoring report for **Sustainable Development Goal (SDG) 2 targets 2.1 and 2.2**.

2.1 Ensure access to safe, nutritious, and sufficient food for all	2.2 End all forms of malnutrition	2.3 Double smallholder food production and income
2.4 Deliver sustainable, resilient food systems	<b>2 ZERO HUNGER</b> 	2.5 Maintain agrobiodiversity
2.a Increase investment in rural infrastructure and services	2.b Correct and prevent world agricultural trade distortions	2.c Ensure proper functioning of food commodity markets

### Key Highlights of the SOFI 2025 Report

- **Hunger Levels (2024):** Around **720 million people** globally faced hunger in 2024 — about **8.2% of the world's population**.
- **Comparison with Past Years:**
  - Hunger remains **significantly higher** than pre-COVID levels.
  - Nearly **96 million more people** are chronically hungry compared to 2015.
- **Food Insecurity:**
  - An estimated **2.3 billion people** experienced **moderate to severe food insecurity** in 2024.
- **Regional Distribution of Undernourishment:**
  - **Asia:** Highest with **323 million** undernourished people.
  - **Africa:** Close second with **307 million**.
  - **Latin America & Caribbean:** About **34 million**.
- **Trends by Region:**
  - Hunger levels **declined** in **Southeast Asia, Southern Asia, and South America**.
  - However, food insecurity **persisted or increased** in other regions, particularly in **Africa**.

Source: [WHO](https://www.who.int/news-room/fact-sheets/detail/the-state-of-food-security-and-nutrition-in-the-world-2025)

## Man-made dams have shifted Earth's poles

### Context

In a recent study researchers found out that the Earth's pole has shifted approximately **3.6 feet (1.1 meters)** between **1835 and 2011**.

### What caused the pole to shift?

- The primary reason is **mass redistribution** on Earth's surface due to **human-made dams**.
- These dams **store billions of tons of water**, changing the distribution of Earth's mass.
- This redistribution led to "**true polar wander**", where the Earth's rotational axis shifts slightly in response to surface mass changes.

Source: [Techno-Science](#)



## Acoustic monitoring Techniques

### Context

Kaziranga National Park conducted its **first-ever Grassland Bird Census** using **acoustic monitoring techniques**.

### Acoustic Monitoring Techniques

- It is a non-invasive technique that uses **sound-recording devices** to capture and analyze animal vocalizations for studying biodiversity, behavior, and ecological health.
- **Key Features:**
  - **Passive Monitoring:** Devices are placed in target habitats to continuously record ambient sounds.
  - **Non-intrusive:** Ideal for studying elusive, nocturnal, or camouflaged species without disturbing them.
  - **Data-Rich:** Generates vast audio data for analysis of species presence, abundance, and activity patterns.
- **Technology Used:**
  - **Autonomous Acoustic Recorders:** Deployed in field locations.
  - **Spectrograms:** Visual representation of sound frequencies over time.
  - **AI/ML Tools:** Software like **BirdNET**, **Raven Pro**, etc., help in identifying species based on sound patterns.
- **Applications::**
  - **Biodiversity Surveys:** Used for bird, amphibian, and bat population studies.
  - **Conservation Efforts:** Helps track endangered species and ecosystem health.
  - **Habitat Monitoring:** Monitors seasonal and long-term ecological changes.
  - **Illegal Activity Detection:** Detects gunshots, chainsaws—useful in anti-poaching surveillance.
- **Advantages:**
  - Suitable for remote or dense habitats.
  - Works day and night, under most weather conditions.
  - Minimizes human bias in observation.
- **Limitations:**
  - Requires high storage and power.
  - Processing and analyzing audio data is time-consuming.
  - Overlapping calls or background noise can hinder species identification.

Source: [IndianExpress](#)

## Places in News

### Severo-Kurilsk

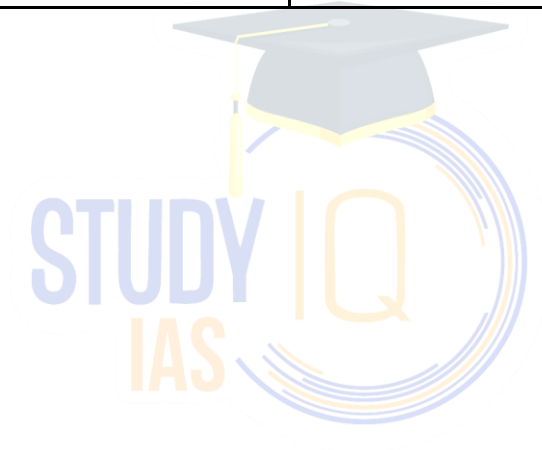


**News?** A powerful **8.8 magnitude earthquake** struck near **Russia's Kamchatka Peninsula** on **July 30, 2025**, triggering a **tsunami** that flooded the coastal town of **Severo-Kurilsk**.

#### About it

- **Location:** Situated on **Paramushir Island**, part of the **Kuril Islands** in **Sakhalin Oblast**, Russia.
- **Tectonic Zone:** Lies along the **Pacific Ring of Fire**, near the **Kuril-Kamchatka Trench**, a major subduction zone.

**Source:** [NDTV](#)



## News in Short

### Intrahepatic Ectopic Pregnancy

**News?** A woman in Uttar Pradesh was found suffering from intrahepatic ectopic pregnancy.

**What is it?**

- It is an **extremely rare** (only 7 documented cases worldwide) and **life-threatening form of ectopic pregnancy** in which the **fertilized egg implants and grows within the liver tissue**, rather than in the uterus or fallopian tubes.
- Reported cases in other countries– **United States, China, and Nigeria**.

Source: [Deccan Herald](#)

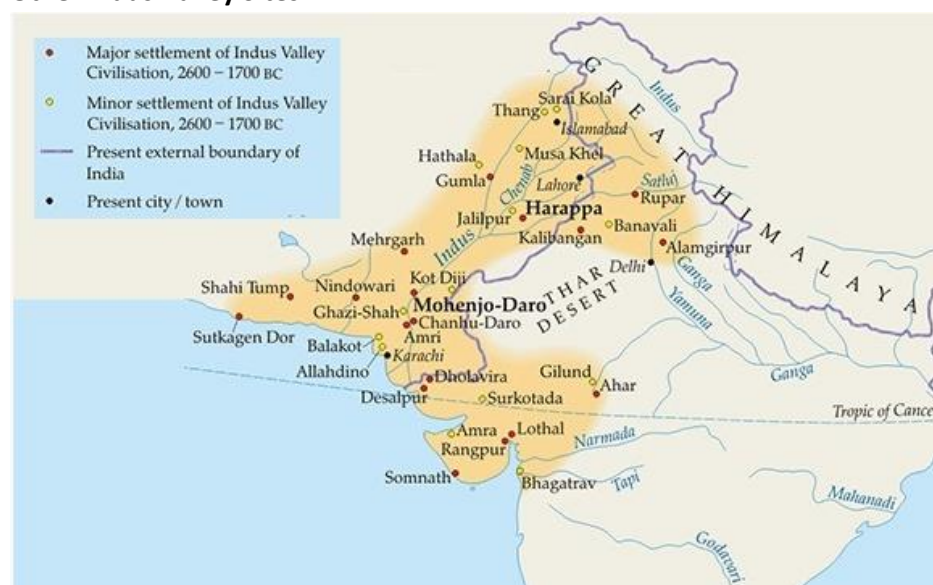
### Ratadiya ki dheri

**News?** A new Harappan site has been found at Ratadiya Ri Dheri in **Jaisalmer district, Rajasthan**.

**About it**

- Discovered by **Dilip Kumar Saini**.
- First known Indus Valley settlement in Rajasthan's arid region.
- The site has been dated to the **Mature Harappan phase** (2600–1900 BCE).
- It is identified as a **rural Harappan settlement**, connected to the **Sindh Harappan network**.
- Artefacts found at the site include:
  - Red pottery** (bowls, pots, jars)
  - Clay and shell bangles**
  - Terracotta objects**
  - Stone tools** and **wedge-shaped bricks**
- Kilns** found at the site resemble those at **Kanmer (Gujarat)** and **Mohenjo-daro (Pakistan)**, indicating a well-developed and possibly industrial settlement.

### Other Indus Valley Sites



Source: [TOI](#)



## Editorial Summary

### Adopt formalisation to power productivity growth

#### Context

- As per the Annual Survey of Industries (ASI), the proportion of contract labour in the manufacturing sector rose from 20% in 1999-2000 to 40.7% in 2022-23 across all industries.
  - This growing contractualisation, when misused, hampers productivity—underscoring the importance of promoting formalisation to ensure sustained long-term growth.

#### Why Formalisation is Crucial for India's Economic and Social Development

- **Boosts Labour Productivity:** Formal workers are more likely to receive **training**, job security, and performance incentives.
  - Stable employment relationships encourage **on-the-job learning**, improving **efficiency and output** over time.
- **Ensures Social Security and Worker Welfare:** Formal jobs come with access to **health insurance, pensions, maternity benefits, and provident funds**.
  - It protects workers from **wage theft, arbitrary dismissals, and exploitative conditions**—enhancing well-being.
- **Strengthens Domestic Demand:** Formal workers have **stable incomes** and are more likely to spend, increasing **consumption**, which fuels **economic growth**.
  - Reduces income inequality and enhances **economic resilience**.
- **Increases Government Revenue:** Formalisation brings more enterprises and workers under the **tax net** and **social security systems** like EPF (Employee Provident Fund) and ESI (Employee State Insurance).
  - Enables better fiscal planning and **redistributive spending** on infrastructure, health, and education.
- **Encourages Technological Upgradation:** Formal firms are more likely to invest in **technology, R&D, and process improvements**.
  - Informal firms often rely on **low-skill, cheap labour** instead of productivity-enhancing investments.
- **Improves Global Competitiveness:** Global supply chains increasingly demand **compliance with labour and environmental standards**.
  - Formalisation ensures Indian industries are **globally credible** and can participate in **high-value global markets**.

#### Why India Needs to Adopt Formalisation to Power Productivity Growth

- **Counterproductive Cost-Cutting via Contractualisation:** While contract labour may reduce short-term costs, excessive reliance on it—especially in small and medium enterprises—has led to a **31% average decline in labour productivity** compared to regular labour-intensive units.
- **Workforce Instability & Low Skill Investment:** Contractual jobs discourage employers from investing in **on-the-job training and skill development**, due to high labour turnover, which negatively impacts **innovation and efficiency**.



- **Wage and Labour Cost Exploitation:** Contract workers earn significantly less (up to **85% lower labour cost** in some industries) and have weaker bargaining power, leading to widespread **worker dissatisfaction** and **low morale**, reducing productivity.
- **Principal-Agent Problem with Third Parties:** Outsourcing employment to contractors often results in **misaligned incentives**, increasing the chances of **shirking** and **low-quality output**.
- **Limited Gains in High-Skill Sectors Only:** Productivity benefits from contract labour are restricted to only **large, high-skill, and capital-intensive sectors**, which make up **just 20%** of formal manufacturing—leaving the bulk (80%) adversely affected.
- **Long-Term Economic Sustainability:** Informalisation within the formal sector threatens long-term industrial competitiveness by undermining **workforce stability, skill accumulation, and labour standards**, all essential for sustainable growth.

#### Policy Suggestions to Promote Formalisation

- **Implement the Labour Code on Industrial Relations (2020):** Enforce the code that allows **direct fixed-term hiring** with **statutory benefits**, reducing dependence on third-party contractors while curbing exploitation.
- **Incentivise Longer Fixed-Term Contracts:** Offer **concessions in social security contributions** and **subsidised access to skilling programmes** to encourage longer, more stable employment relationships.
- **Revive PMRPY Scheme:** Bring back and extend the **Pradhan Mantri Rojgar Protsahan Yojana (PMRPY)** to help employers formalise jobs by **subsidising EPF/EPS contributions**.
- **Strengthen Labour Inspections & Compliance:** Ensure stricter enforcement of **labour laws and compliance checks** to prevent firms from misusing contract labour as a loophole.
- **Targeted Support to Small & Medium Enterprises (SMEs):** Provide **financial and technical support** to SMEs to help transition from contract-heavy to regular employment models.
- **Promote Industry-Academia Skilling Linkages:** Encourage **public-private partnerships** for skill development to ensure contract and regular workers are both productively employed with necessary training.

Source: [The Hindu](#)

## Why the Gini Index is Wrong About India

### Context

Despite India scoring **25.5** on the Gini Index—placing it among the **most equal societies**—this **does not reflect the ground reality**.

### What is the Gini Index?

- The **Gini Index** (or **Gini Coefficient**) is a statistical measure of **income or wealth inequality** within a nation or a group:
- It ranges between **0 and 1** (or 0 to 100 when expressed as a percentage).
  - **0** represents **perfect equality** (everyone has the same income).
  - **1 (or 100)** represents **perfect inequality** (one person has all the income).
- A **lower Gini Index** implies **more equality**, while a **higher score** indicates **greater inequality**.
- **What is the Significance of the Gini Index?**
  - **Economic Planning:** Helps governments understand inequality trends and design **targeted welfare schemes**.
  - **Global Comparisons:** Allows comparison of **income distribution across countries**.
  - **Social Insights:** Highlights the potential risk of **social unrest or marginalisation** due to widening inequality.
  - **Development Indicator:** Used as a component in broader indices like the **Human Development Index (HDI)** and **World Bank reports**.

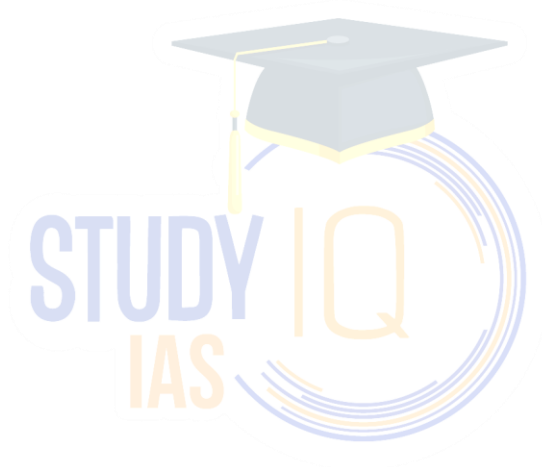
### How the Gini Index May Be Wrong About India

- **Excludes Informal Sector:** A large portion of India's workforce (over **90%**) is employed in the **informal sector**, where income data is **not captured accurately**.
  - Gini calculations are based on **income or tax data**, which excludes the **vast informal population, underreporting actual inequality**.
- **Data Gaps & Tax Thresholds:** Only a small fraction (less than **10%**) of India's adult population files taxes.
  - This creates **data distortion**, as the **wealthiest underreport income** while the **poorest are invisible** to the system.
- **Ignores Wealth Inequality:** Gini Index mostly focuses on **income**, not **wealth**.
  - India has some of the **highest wealth concentration rates**—the top 1% holds over **22.6% of national income**, reflecting **severe wealth inequality** that Gini misses.
- **Does Not Capture Intersectional Inequalities:** It does not account for **gender, caste, regional, education, or digital inequalities**—all of which are **structurally embedded in Indian society**.
  - **E.g.,** Only **25% of rural women** have Internet access, compared to **49% of rural men**, which affects economic participation and autonomy.
- **Uneven Access to Services:** The Gini Index doesn't consider **non-monetary disparities** like—Access to quality education, Health services, Digital infrastructure.
  - These deeply affect **life opportunities** and **intergenerational mobility**.
- **Urban-Rural & Intra-Urban Inequality Hidden:** Averages used in Gini can mask **wide inequalities within cities or regions**.
  - **E.g.,** A luxury car owner and a domestic worker in the same neighborhood may have drastically different lives, but such **micro-level disparities** are lost in national averages.

### Conclusion

While the **Gini Index is a useful statistical tool**, its methodology **oversimplifies inequality** in complex societies like India. It **misses informal economies, wealth concentration, and layered inequalities** like gender, digital, and caste-based discrimination. Hence, despite a low Gini score, **India remains deeply unequal in lived realities**, and any celebration based on the index should be approached with caution and critical analysis.

Source: [The Hindu](#)



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## Value Addition

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### Rajendra Chola's Gangetic expedition

#### Gangetic Expedition (Northern India Campaign) – c. 1023 CE

- **Objective:** To assert dominance over North India and bring Ganges water to the Chola capital.
- **Route and Conquests:**
  - Began from **Venginadu** (modern Andhra Pradesh)
  - Conquered **Chakrakottam** (Chitrakoot, Chhattisgarh)
  - Defeated **Masuni Desam** (regions in Odisha/Chhattisgarh)
  - Subjugated **Kosala** (Dakshina/Mahakosala in Chhattisgarh)
  - Captured **Dandabhukti** (parts of southern Bengal)
  - Advanced into **Radha** (Hooghly, Howrah, Murshidabad, Birbhum)
  - Crossed the **Ganges** into **Vangala Desam** (Eastern Bengal)
  - Defeated **Mahipala of the Pala dynasty**
- **Outcome:** Symbolic act of bringing Ganga water; creation of **Cholagangam tank**; assertion of imperial prestige.

#### Southeast Asian Naval Expedition (Kadaram/Kataha Campaign) – c. 1025 CE

- **Objective:** To control maritime trade routes and assert naval supremacy.
- **Targets:**
  - **Srivijaya Empire** (based in modern-day Sumatra, Indonesia)
  - Captured **Kadaram** (modern **Kedah**, Malaysia)
  - Raided **Srivijayan ports:** Tambralinga, Pannai, Malaiyur, Mayirudingam, Ilamuri, etc.
- **Outcome:** Temporary disruption of Srivijayan hegemony; recognition of Chola naval might across Southeast Asia.

#### Pandya and Chera Campaigns (Southern India)

- Though already under Chola control during his father Rajaraja I's reign, Rajendra further subjugated:
  - **Pandya country** (Madurai region)
  - **Chera country** (Kerala region)
- **Purpose:** Reassert Chola dominance in the south.

#### Ceylon (Sri Lanka)

- Continuation of campaigns initiated by **Rajaraja I**
- Complete annexation of **Anuradhapura Kingdom**
- Ensured **Chola control over entire Sri Lanka** for decades.